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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,419	12/08/2003	George P. Vella-Coleiro	1052.051	2505
22186 7590 12/21/2006 MENDELSON AND ASSOCIATES, P.C. 1500 JOHN F. KENNEDY BLVD., SUITE 405 PHILADELPHIA, PA 19102			EXAMINER TSE, YOUNG TOI	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 12/21/2006	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/730,419	VELLA-COLEIRO, GEORGE P.	
	<b>Examiner</b>	<b>Art Unit</b>	
	YOUNG T. TSE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2006 and 03 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4 and 7-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8-10,13-16 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 4,7,11-12 and 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060526 and 20061026</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 6-10, filed on July 03, 2006, with respect to the rejection(s) of claim(s) 1-2, 7-10, 13, 16, 20-21 and 23-24 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yu et al. and Johnson et al..

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) filed on May 26, 2006 has been partially considered by the examiner because the foreign patent document EP 1 199 797 A1 has already been cited in the IDS filed on January 05, 2005 and has been considered by the examiner.

### ***Drawings***

3. The drawings were received on July 03, 2006. These drawings are acceptable.

### ***Claim Objections***

4. Claims 1-2, 4 and 7-24 are objected to because of the following informalities: in line 4 of both claims 1 and 20, "reduces spurious emissions" should be "reduces the spurious emissions"; in claim 9, line 1, "pre-distortion to" should be "pre-distortion, to".

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Wherein the dependent claims 2, 4, 7-8, 10-19 and 21-24 depend on the independent claims 1, 9 and 20. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 13-15 and 20-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 13 and 20 contain subject matter of a first set of frequency components corresponds to positive and negative frequency components of in input signal; and a second set of frequency components corresponds to only positive frequency components or only negative frequency components of the input signal which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Wherein the dependent claims 14-15 and 21-24 depend on claims 13 and 20, respectively.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yu et al. U.S. Patent No. 6,194,942 (hereinafter "Yu").

Yu discloses a predistortion circuit in Figure 3 for generating a distortion output. So, it is well known to a person skill in the art that the output So in general is applied to an amplifier through a modulating circuit to generate an amplifier signal for reducing spurious emissions.

In Figure 3, the predistortion circuit comprises a splitter 2 for splitting an input signal  $S_i$  into a primary path P1 and a secondary path P2, a first combiner 3 for combining a main signal  $I_m$  on the primary path and a predistorted signal  $I_{pre}$  on the secondary path into a single signal for modulating a nonlinear device with predictable distortion characteristics, the secondary path comprises a pre-frequency response adjusting unit 21, a distortion signal generator 4 for generating a first intermodulation products  $I_p$  to an even-order signal processing unit 7 including attenuator 73, post-frequency response adjusting unit 75 and phase adjusting unit 77 and a second intermodulation products  $I_n$  to an odd-order signal processing unit 8 including attenuator 83, post-frequency response adjusting unit 85 and phase adjusting unit 87, and a

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second combiner for combining the outputs  $I_{\text{even}}$  and  $I_{\text{odd}}$  of the signal processing units 7 and 8. See column 3, line 18 to column 5, line 5.

With respect to claim 1, the even-order signal processing unit 7 generates a first frequency-dependent pre-distortion signal  $I_{\text{even}}$  corresponding to a first set of frequency components  $I_P$  for the input signal  $S_i$ ; the odd-order signal processing unit 8 generate a second frequency-dependent pre-distortion signal  $I_{\text{odd}}$  corresponding to a second set of frequency components  $I_N$  for the input signal  $S_i$ , wherein the first set of frequency components is different from the second set of frequency components ; and the second combiner 9 combines the first and second frequency-dependent pre-distortion signals to generate the pre-distorted signal  $I_{\text{pre}}$ , wherein, the first set of frequency components corresponds to positive frequency components of the input signal; and the second set of frequency components corresponds to negative frequency components of the input signal. See column 4, line 59 to column 5, line 5.

With respect to claim 2, wherein the phase of the pre-distortion is also frequency-dependent because the secondary path includes phase adjusting units 77 and 87.

With respect to claim 8, it is well known in the predistortion communications art that the input signal  $S_i$  is represented in a base-band domain and the first and second frequency-dependent pre-distortion signals are generated in a digital domain.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. in view of Johnson et al. U. S. Patent No. 6,683,495 (hereinafter "Johnson").

With respect to claims 1 and 2, Yu discloses all the claimed elements as discussed in section 8 above, except, Yu fails to show or suggest that the primary path generates a main pre-distortion signal from the input signal  $S_i$ .

Johnson also discloses a relevant predistortion circuit used in different embodiments of Figures 1, 3, 6-8 and 11-14, wherein each predistortion circuit comprises a signal cancellation circuit and a distortion cancellation circuit. Figure 20 shows an embodiment of one of the distortion cancellation circuits, wherein each distortion cancellation circuit comprises a primary path 2007 and a secondary path adjuster d. Johnson clearly teaches that the primary path generates a primary distortion signal and the adjuster d comprises a plurality of channels, wherein a combiner 2006 combines the outputs of the channels to generate a secondary distortion signal, a combiner 106 combines the primary and secondary distortion signals to generate a distortion or predistortion signal. See column 13, lines 22-54.

Therefore, it would have been obvious to one of ordinary skill in the art to include an additional predistortion element in Yu's primary path as taught by Johnson in order to generate a primary predistortion signal for the purpose of reducing spurious emissions

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in the primary path prior to the combination of the primary path signal and the secondary path signal to generate the predistortion signal.

With respect to claim 16, it is well known in the predistortion communications art that the input signal  $S_1$  is represented in a base-band domain and the first and second frequency-dependent pre-distortion signals are generated in a digital domain.

***Allowable Subject Matter***

11. Claims 4, 7, 11-12 and 17-19 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

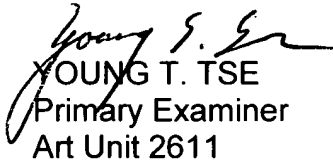
Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
YOUNG T. TSE  
Primary Examiner  
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